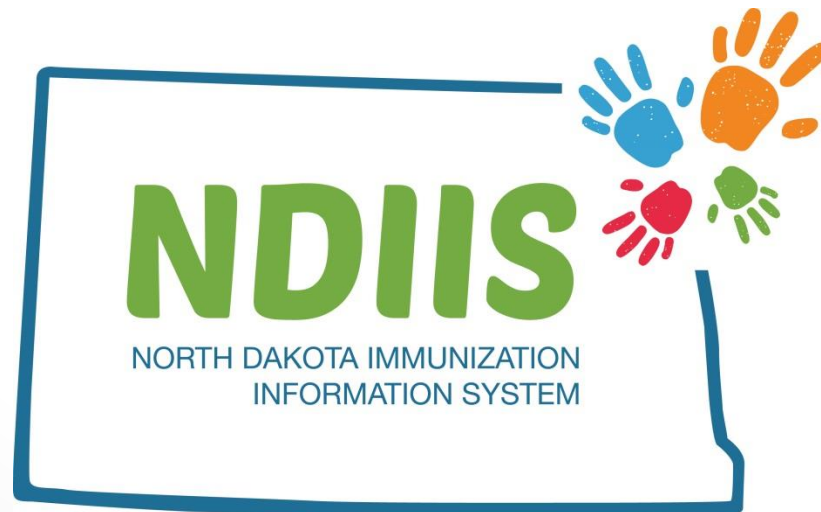


North Dakota Immunization Information System



Interoperability Effects on NDIIS Data Quality

NDIIS Interoperability

- The NDIIS is currently electronically connected to over 200 individual provider practices that represent more than 60% of all doses entered into the NDIIS.
- Data that is entered into the provider's electronic health record (EHR) system is electronically sent to the NDIIS.
- The NDIIS sends client immunization history and forecast to the EHR.
 - How the information from the NDIIS is displayed in the EHR system is up to the EHR vendor and/or the provider facility.

Data Quality - forecaster

- If your EHR has it's own forecast, it may be slightly different than the NDIIIS forecast.
 - Doses that are given according to your EHR's forecast may cause the dose to be invalid according to the NDIIIS if the two forecasters are out of sync.
 - The immunization program sends reminder/recall notices based on the NDIIIS forecaster. Patients may get recalled who are not up-to-date according to the NDIIIS but will be told they are up-to-date when they contact their provider.
 - The NDIIIS does real-time forecasting of records entered via interoperability. This means that when a record is added to the NDIIIS from your EHR, you can re-query the client immediately and receive an updated forecast back.
 - The NDIIIS team has also making changes to the NDIIIS forecaster so that it is in sync with CDC's clinical decision support for immunizations guidance and test cases.

forecaster continued...

- What can we do?
 - Check with your internal IT to see how the NDIIIS client vaccination history and forecast information is displayed in your EHR system.
 - Make sure you know how you can manually trigger a query to the NDIIIS to get the patient's updated immunization history and forecast.
 - Use the NDIIIS forecast when deciding what immunizations a patient needs and when.

Data Quality – duplicate clients

- When the EHR system is electronically looking for an NDIIIS client record (query), the system searches based on exact match for first name, last name and birthdate.
 - Additional matching logic has been added to the NDIIIS to try and match records using additional data fields, such as middle name/initial and gender, and to account for names with different formats (i.e. removing spaces and special characters) and names that are spelled different.
 - If a matching record cannot be found, any doses sent to the NDIIIS from your EHR will result in a duplicate client record being created.
 - If the NDIIIS already has an existing duplicate for a client:
 - the EHR query will not be able to display a match in the EHR and
 - any new doses sent to the NDIIIS will result in another duplicate client record being created.

duplicate clients continued...

- What can we do?
 - The NDHS team has implemented automated client-deduplication that identifies duplicate client records and places them in a queue for review and merging.
 - If you find a duplicate client record in the NDHS, flag the record by typing the word “duplicate” in the second (empty) address line on the NDHS client demographics page.
 - These records fall to a weekly report run by the NDHS team and the records are combined every Friday.
 - When client records are created in the NDHS and in your EHR, make sure to use their full first name and make sure last names are spelled correctly.

Data Quality – duplicate doses

- Most of the interoperable EHR systems can only display NDIIIS immunization histories, which requires users to manually enter any historical doses into their EHR.
 - This will send the historical doses back to the NDIIIS and create duplicate dose records.
- Some EHR systems are also set up to continue submitting immunization doses to the NDIIIS if they don't get an immediate response from the NDIIIS acknowledging that the dose record was received.
 - This means that the same dose entered once into an EHR could be sent to the NDIIIS multiple times, resulting in duplicate dose records.

duplicate doses continued...

- What can we do?
 - In April 2014, the NDIIIS implemented a vaccine-level deduplication system that evaluates all incoming dose records for potential duplicates.
 - Approximately 80-85% of all incoming doses are automatically de-duplicated and are never added to the client's record.
 - The other 15-20% fall into a queue for manual review by immunization program staff.
 - Duplicate doses are evaluated on a daily basis.
 - Make sure to work through all duplicate dose records from the previous day by the end of the current day (i.e. all duplicates sent to the NDIIIS on Monday will be reviewed and de-duplicated by end of day Tuesday).
 - The NDIIIS team has evaluated all historical NDIIIS immunization records for potential duplicates added prior to April 2014.

Data Quality – inventory

- All interoperable EHR systems should require users to enter a lot number and select a distinct vaccine funding source (i.e. public or private) for every dose of vaccine administered.
 - If either of these fields is missing when the electronic message is sent to the NDHS, the dose may still be added to the NDHS but will have a dummy dose (vaccine abbreviation) in place of the actual lot number.
- When a dose is added to an EHR system and sent to the NDHS, the lot number must find an exact match on both the lot number AND funding source.
 - A matching lot number will not be found and will result in a dummy dose being added if:
 - the lot number or funding source are entered incorrectly in the EHR,
 - the user enters a lot from the vaccine vial/syringe that is different than the lot number on the outer packaging and/or
 - the lot number does not exist in the provider's NDHS inventory.

inventory continued...

- When a dummy dose is added in place of the actual lot number, the dose cannot be appropriately decremented from the provider's NDHS inventory and the dose cannot be counted as a public or private dose administered.
 - This could affect your ability to order public vaccine as your inventory doses on hand will be higher and your doses administered will be lower.
- The immunization program will follow-up each month with those providers who have dummy doses in place of a lot number and a VFC eligible status.
 - It is expected that the dose records are updated in the NDHS since public doses administered data is used to anticipate future vaccine funding needs.

inventory continued...

- What can we do?
 - The NDHIS team is planning to make changes to the electronic interface to improve our lot number matching.
 - Enter your private inventory into the NDHIS.
 - Make sure the lot number documented in your EHR is correct and contains no typing errors.
 - Make sure the correct funding source was selected in your EHR.
 - The public lot numbers automatically entered into your NDHIS inventory is from the outer packaging and this is the lot number that will need to be documented in your EHR in order to find a correct matching lot number when the dose record is sent to the NDHIS.

inventory continued...

- What can we do?
 - When documenting lot numbers, make sure you are entering the lot from the unit of sale (outer packaging) of the vaccine, not the unit of use (individual vial/syringe)
 - MedImmune, Pfizer, Merck and Bio CSL all use the same lot number on both the unit of sale and unit of use for all of their vaccines.
 - Certain vaccines from Sanofi Pasteur, Novartis and GSK have different lot number variations between the unit of sale and unit of use.
 - Providers who use barcode scanners to document vaccine administration information will need to manually add the additional letter or number or change the letter that is different on the unit of use in order to match the lot number on the unit of sale that is in your NDHS inventory.

Complete details on the unit of sale vs. unit of use lot number documentation can be found on the Immunization Program web site at

<http://www.ndhealth.gov/Immunize/NDHS/Training.htm>.

Data Quality – patient portal

- A lot of the EHRs being used by North Dakota providers have a patient portal that allows patients to view their medical information, including immunizations.
- Almost all of the EHR patient portals are set to only show those vaccines that were actually administered by that provider or within that health system.
 - If a patient's complete immunization history has been entered into the EHR, not all of those immunizations will show in the patient portal.
 - Patients may receive notices through their patient portal telling them that they need vaccines they have already gotten
 - This is very common with adults and flu vaccine since a lot of adults get their flu vaccine somewhere other than their primary healthcare provider.

patient portal continued...

- What can we do?
 - Contact your local IT to find out what can be displayed in your EHRs patient portal.
 - Ask if there is any way to get a patient's complete history to show in the patient portal.
 - When a patient calls wondering about the notice they got from their patient portal, check the NDHS to see if they have gotten that vaccine somewhere outside of your facility.